

Original Article**The Difficulties Experienced by Nursing Students during the Use of NANDA Diagnoses in Care Management****Melek Ardahan, PhD, RN**

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Correspondence: Dr. Melek Ardahan, Associate Professor, Ege University, Faculty of Nursing, Department of Public Health Nursing, Bornova, Izmir, 35100, Turkey e-mail: melekardahan@hotmail.com**Abstract**

It was observed in the research carried out that students experienced difficulties in certain stages or in the entire nursing process during clinical applications. The study is planned to determine difficulties experienced by nursing students in using diagnoses of NANDA at care management. The students, studying in 3rd and 4th class at the Ege University Nursing School, covers the universe of descriptive study. The mean age was 21.93 ± 1.48 years (min: 20, max: 35). Students stated difficulties in preparing care plans as; in ability to identify nursing diagnosis on the patient, difficulty in verbal communication with the patient, not to be fully mastered on diagnosis and theoretical knowledge. Students described the causes of difficulties they have experienced during preparation of care plans as follows: unable to determine nursing diagnoses appropriate to the patients and unable to receive sufficient education about diagnoses and lack of experience. When the NANDA nursing diagnoses used by students were examined, it was determined that they have used the following diagnoses frequently: the risk of infection, infection, constipation, the risk of constipation, activity intolerance, impairment in physical movement, disorder in sleeping habits, fatigue, lack of information, anxiety, risk of trauma, risk of impairment on the integrity of skin and pain. The study showed that many students had difficulty in the process of nursing care and was found to need help. It is very important to determine nursing students' use of nursing process in order to improve the nursing student's chance to provide more qualified care.

Keywords: Nanda. Nursing diagnostic system. Student nurses. Care management.

Introduction

The concept of the nursing process was first addressed by Lydia Hall in 1955. Ida Jean Orlando cited about this concept in her book called "The Dynamic Nurse Patient Relationship" in 1960. According to Orlando's view "the aim of nursing is to provide the help needed by the patient". Nurses achieve this goal by identifying patient's needs and initiating a process that will help in fulfilling these needs directly or indirectly (Craven & Hirnle, 2000; Paans et al., 2011; Velioglu, 1999). The steps of the nursing process were re-revised in 1970 and have been described by the American Nurses Association in 1973. These steps were defined in 1973 as "The Standards of Nursing Applications" and constituted the nursing diagnoses that will help patient care of the "North American Nursing Diagnosis Association" (NANDA) (Avsar et al., 2014), which became NANDA International in 2002.

The NANDA (2003) nursing process is defined as "nurse's clinical decisions related to the real or potential problems of individuals, families and communities. The nursing process involves five stages: data collection, nursing diagnosis, identifying outcome criteria, planning/practicing and assessment (Birol, 1999; Muller-Staub et al., 2006).

The nursing process, which is a model that finds solutions to nursing problems, is taught as an important element of the nursing education (Uyer, 1992). Although the nursing process, which is the application of a scientific method to nursing care, is taught to students in the context of nursing education, it was determined that students have experienced difficulties when preparing care plans.

Besides, it is remarkable that students are unable to put care plans into the implementation phases. In education, students who graduate without learning to work together with the nursing process and comprehending the importance of working together with it, are unable to use the nursing process when they graduate (Guner, & Terakye, 2000; Häyrynen et al., 2010).

It was observed in the research carried out that students experienced difficulties in certain stages or in the entire nursing process during clinical applications. In Babadağ et al.'s study (2004) it was concluded that although students were able to identify nursing diagnoses in studies carried

out on sample cases, the rates of correct nursing diagnoses were not at the desired level.

Therefore, studies should be increased and carried out with real cases in a clinical environment. Taşdemir and Kızılkaya (2013) studied the NANDA nursing diagnoses in clinical applications for the mental health and diseases nursing course of the senior students at the higher school of health education. They have determined that nursing students were unaware or confused that symptoms and findings were not diagnoses and could not completely differentiate problems falling into the nursing domain. It is very important to determine nursing students' use of the nursing process in order to improve the nursing student's chance of providing more qualified care in work life, of giving individual-centered care and of having the scientific identity of the profession. From this viewpoint, research was planned in order to identify the difficulties experienced by nursing students when using the NANDA diagnoses in care management.

Method

This was a descriptive type of study. The scope of the research was comprised of 3rd and 4th year students ($n=644$) attending the Ege University Nursing School during the 2015-2016 academic year. The sampling was selected from the scope. The sampling was determined from the formula that the number of individuals in the scope is known ($n=241$). Students were selected through the simple random sampling method.

Data Collection

The data collection tool was a survey prepared according to the literature (Andsoy et al., 2013; Ozer & Kuzu, 2006). In the survey there were 21 questions (3 open-ended and 18 closed-ended), student's age, gender, year of study, marital status, the difficulties experienced during preparation of care plans, method of registering nursing care plans, data collection methods in nursing care plans, usage frequency of the diagnoses in the Functional Health Pattern and how NANDA diagnoses contribute to development of the individual.

Evaluation of Data

The SPSS package program version 21.0 was used during evaluation of the data and number percentage distributions were calculated.

Ethics

Prior to the research, written approval was

obtained from the Ethics Committee of the Ege University Nursing School and verbal consent was obtained from the participants.

The research was carried out voluntarily. Information related to identity was not obtained and the participants' information was kept confidential during the study.

Finding

Students' Introductory Features

The mean age was 21.93 ± 1.48 years (min:20, max:35), 17.8% were male, 82.2% were female, 4.6% were married and 95.4% were single. A total of 60.2% attended the 3rd year and 39.8% attended the 4th year of education.

Table 1. The Distribution of Difficulties Experienced by Students During Preparation of Care Plans in Applications

	Always		Frequently		Sometimes		Rarely		Never	
	n	%	n	%	n	%	n	%	n	%
Data collection	28	11.6	61	25.3	104	43.2	33	13.7	15	6.2
To be able to determine nursing diagnoses	21	8.7	83	34.4	87	36.1	38	15.8	12	5.0
To put into order of priority	34	14.1	79	32.8	74	30.7	35	14.5	19	7.9
To develop care objectives	22	9.1	69	28.6	95	39.4	34	14.1	21	8.7
To be able to plan interventions	28	11.6	79	32.8	79	32.8	44	18.3	11	4.6
Assessment	27	11.2	55	22.8	87	36.1	43	17.8	29	12.0

Table 2. The Distribution of Students in Need of Help When Preparing the Nursing Process

	Yes		No	
	n	%	n	%
Data collection	46	28.9	113	71.1
Diagnosing	83	45.9	98	54.1
Planning	62	36.0	110	64.0
Practicing	48	29.3	116	70.7
Evaluating	26	17.0	127	83.0
All phases	33	21.3	122	78.7

Table 3. The Distribution of Students According to Utilization Frequency of the NANDA Nursing Diagnoses Grouped Under Functional Health Patterns

Gordon's Functional Health Patterns/NANDA Diagnoses	Very Frequently		Frequently		Sometimes		Rarely		Never	
	n	%	n	%	n	%	n	%	n	%
1. Perception of health	35	16.6	81	38.4	66	31.3	22	10.4	7	3.3
2. Nourishment-Metabolism	39	21.2	86	46.7	49	26.6	7	3.8	3	1.6
Change in nourishment pattern	79	34.3	105	45.7	38	16.5	7	3.0	1	0.5
Risk of infection	169	70.4	55	22.9	10	4.2	5	2.1	1	0.4
Infection	77	32.9	71	30.3	50	21.4	27	11.5	9	3.8
Transmission risk of infection	61	26.0	52	22.1	63	26.8	47	20.0	12	5.1
Excess of fluid volume	59	25.0	74	31.4	75	31.8	24	10.2	4	1.7
Deficit of fluid volume	34	14.5	63	26.9	73	31.2	41	17.5	23	9.8
Risk of fluid volume deficit	43	18.6	58	25.1	55	23.8	51	22.1	24	10.4
3. Elimination	27	18.4	43	29.3	56	38.1	12	8.2	9	6.1
Constipation	96	40.5	88	37.1	39	16.5	12	5.1	2	0.8
Risk of Constipation	95	40.1	88	37.1	46	19.4	8	3.4	0	0.0
Change in Urinary Discharge Pattern	45	19.6	75	32.6	70	30.4	32	13.9	8	3.5
4. Activity Exercise	42	27.6	58	38.2	44	28.9	7	4.6	1	0.7
Activity intolerance	112	47.3	73	30.8	41	17.3	11	4.6	0	0.0
Impairment in physical movement	80	33.8	80	33.8	60	25.3	14	5.9	3	1.3
Disorder in sleeping habits	105	43.6	85	35.3	38	15.8	12	5.0	1	0.4
Self-care deficit	69	29.1	82	34.6	63	26.6	19	8.0	4	1.7
Fatigue	101	42.3	80	33.5	45	18.8	12	5.0	1	0.4
Alteration in respiratory function	49	20.5	77	32.2	79	33.1	30	12.6	4	1.7
Inefficiency in clearing respiratory tract	36	15.5	57	24.5	74	31.8	46	19.7	20	8.6
5. Cognitive-perceptive pattern	40	27.6	38	26.2	57	39.3	6	4.1	4	2.8
Lack of knowledge	137	58.1	59	25.0	30	12.7	6	2.5	4	1.7
6. Self-perception	32	20.4	53	33.8	54	34.4	15	9.6	3	1.9
Deterioration in body image	67	28.9	74	31.9	65	28.0	21	9.1	5	2.2
7. Role-relationship	33	15.4	46	21.5	83	38.8	43	20.1	9	4.2
8. Sexuality-reproduction	19	8.7	44	20.2	71	32.6	57	26.1	27	12.4
9. Coping-stress tolerance	35	17.9	63	32.1	65	33.2	26	13.3	7	3.6
Anxiety	110	46.6	79	33.5	28	11.9	17	7.2	2	0.8
10. Value-belief	33	14.7	46	20.5	53	23.7	54	24.1	38	17.0
11. Safety-protection	36	22.6	39	24.5	57	35.8	19	11.9	8	5.0
Risk of trauma	89	37.2	78	32.6	52	21.8	17	7.1	3	1.3
Alteration in oral mucous membrane	72	30.4	89	37.6	55	23.2	19	8.0	2	0.8
Risk of impairment on the integrity of skin	93	39.7	88	37.6	41	17.5	11	4.7	1	0.4
12. Comfort	44	27.0	49	30.1	52	31.9	11	6.7	7	4.3
Pain	146	61.6	62	26.2	22	9.3	5	2.1	2	0.8
Other combined diagnoses	23	13.1	48	27.4	68	38.9	25	14.3	11	6.3

The Difficulties Experienced by Students When Preparing Care Plans

Of the students, 86.7% stated that they had experienced difficulties during the phases of the nursing process. When the difficulties experienced by students during preparation of the care plans were examined, it was observed that 43.2% had sometimes experienced difficulties during the data collection phase, 36.1% during identification of the nursing diagnosis, 32.8% frequently during the phase of putting into order of priority, 39.4% sometimes during the development of care objectives, 32.8% frequently during the activityplanning phases, and 36.1% sometimes during the evaluation phases (Table 1).

Students described the causes of difficulties they have experienced during preparation of care plans as follows: unable to determine nursing diagnoses appropriate to the patients andunable to receive sufficient education about diagnoses and lack of experience.

Students' Status of Needing Help When Preparing the Nursing Process

While 71.4% of the students needed help when preparing the nursing process, 28.6% did not. Of the students, 45.9% needed help during diagnoses, 36.0% during planning, 29.3% during applications and 28.9% during data collection (Table 2).

Students reported that they have collected data by using the following methods: anamnesis (61.8%), observation (51.9%), examination of health records (49.8%), examination of laboratory tests (43.6%) and physical examination (34.0%). Students used the following tools when the nursing process was prepared: paper (94.8%), computer (40.8%), telephone (33.5%) and tablet (5.6%). Students stated that the manual (28.2%) and digital (71.8%) recording methods should be available when the nursingprocess is prepared.

Nurses' Status of Using theNANDA Nursing Diagnoses Grouped Under Functional Health Patterns

Of the students, 49.0% stated that they used theNANDA nursing diagnoses in applications effectively, whereas, 51.0% did not use them effectively. When the NANDA diagnostics used by students during preparation of nursing care plans were examined, it was determined that

48.1% always used available diagnoses, 37.8% always used risk diagnoses and 35.3% frequently used collaborative diagnoses. When the NANDA nursing diagnoses used by students were examined, it was determined that they have used the following diagnoses frequently: the risk of infection, infection, constipation, the risk of constipation, activity intolerance, impairment in physical movement, disorder in sleeping habits, fatigue, lack of information, anxiety, risk of trauma, risk of impairment on the integrity of skin and pain (Table 3).

When the effects on the students of the NANDA diagnoses used during the nursing process were scrutinized, it was observed that they positively affected students' knowledge (77.6%), skills (53.5%), critical thinking (56.0%), autonomy (51.5%), motivation (46.9%) and time management (40.2%), whereas, job satisfaction was not affected (42.7%), but workload was affected negatively (44.1%). When using the NANDA diagnoses, 67.2% of students defined themselves as dependent, 19.5% as independent and 13.3% felt themselves professional.

Students' Knowledge Related to Nursing Classification Systems Other than the NANDA

Of the students, 58.5% stated that they knew other nursing diagnostic systems. Of the students, 70.1% knew the Nursing Interventions Classification(NIC) system, 64.5% the Nursing Outcomes Classification (NOC) system, 57.1% the International Classification of Nursing Practices (ICNP) and 49.2% the Omaha classification system.

The rate of students that want to use a system other than the NANDA was 26.1%. Students stated that they wanted to use a more comprehensive and effective diagnostic system, a more professional system that is not dependent on papers and a digital system.

Discussion

Nurses' care providing role that can be applied independently is based on the nursing process. The nursing process, which is a model that finds solutions to the nursing problems, is taught as an important element of nursing education. Nurses take the health history of the patients, determine their needs, develop comprehensive care plans, provide therapy and care and assess the outcomes (Birol,2009). Nurses and students may experience some difficulties when deciding on

and applying care-related functions.

The Difficulties Experienced by Students in Applications When Preparing Care Plans

It was determined in study that a vast majority of students have experienced difficulties during the phases of the nursing process and needed support in preparation of the nursing process. While preparing the nursing process, students have frequently experienced difficulty at the phase of putting in order of priority and planning of interventions; and sometimes at the phase of data collection, development of care objectives and determination of nursing diagnoses. Similarly, in a study carried out by Yont et al. (2009) to identify students' views related to nursing diagnoses and ability to utilize nursing diagnoses, 76.9% of the students knew what the nursing diagnoses were, but 31.5% had difficulty in defining patient's care needs as a nursing diagnosis. In a study by Keski and Karadağ (2010) that investigated the knowledge levels of senior year students related to the nursing process, it was found that 60.0% experienced difficulties at the various phases of the process. Similar to that study, Taşdemir and Kızılkaya (2013) found lower rates in students concerning the ability to determine, plan, apply and evaluate the nursing diagnoses. When the literature was reviewed, there were results similar to those of the present study (Avsar et al., 2014; Altunsaray et al., 2003). Therefore, it may be recommended that training should be provided to students related to the nursing process and that its phases are reiterated in real cases.

Students described the causes of difficulties they experienced when care plans were prepared as unable to determine a nursing diagnosis appropriate to the patient, having difficulty in establishing verbal communications with patients, unable to master completely the diagnoses and theoretical knowledge, unable to receive sufficient education about diagnoses and lack of experience. In a study by Fesci et al. (2008), it was reported that the causes of difficulties they experienced when care plans were prepared were lack of time (50%) and extreme number of patients (16.7%). In a study by Andsoy et al. (2013) nurses reported the causes of difficulties they experienced when care plans were prepared as mostly workload, excess number of patients (55.6%) and lack of time (38.9%). When the studies carried out were examined, it was observed that nursing students have complained

about lack of experience and working nurses about the workload. According to these results, students should gain more experience, prepare more care plans, communicate with patients and review missing information.

Status of Nurses Needing Help When Preparing the Nursing Process

In the present study, most of the students reported that they needed help when the nursing process is prepared. Students need help in the diagnosing, planning, application and data collection phases. In a study carried out by Terzioglu et al. (2011) on 168 students from three different universities, they found that students did not have sufficient theoretical knowledge related to trauma cases and they were inefficient in determining nursing diagnoses, planning of interventions and setting priorities and they also needed help. In the light of these findings, it is thought that certain guidelines should be developed for the proper use of nursing diagnoses.

It was determined in the present study that students collected data generally by using anamnesis, observation and health records. Despite the fact that almost all of the students have used the paper method when recording the nursing process, more than half of them stated that a digital recording method must be available. It was determined in a study by Hayrinne et al. (2010) that electronic nursing care plans may be utilized in the documentation of patient care. However, deficiencies were detected in evaluation, nursing diagnoses, setting of care objectives and documentation of nursing interventions. It is thought that in the direction of the nursing process, health care professionals are in need of an electronic classification system to record patient care and training so that they can use it effectively.

Nurses' Status of Using the NANDA Nursing Diagnoses Grouped Under Functional Health Patterns

Types of diagnoses are divided into three: available, risk and collaborative nursing diagnoses (NANDA, 2003). To use diagnoses effectively is to make diagnoses easily available. In the present study, nearly half of the students can use the NANDA nursing diagnoses effectively and make available diagnoses. Similarly, Serbest et al.'s study (2013) the types of diagnoses in patient care plans were found to

be available (18.9%) and risk diagnoses (81.1%). Consequently, available diagnoses and risk diagnoses are used more often than collaborative diagnoses.

When the NANDA nursing diagnoses used by students in the present study were examined, it was determined that they used the following diagnoses more frequently: the risk of infection, infection, constipation, the risk of constipation, activity intolerance, impairment in physical movement, disorder in sleeping habits, fatigue, lack of information, anxiety, risk of trauma, risk of impairment on the integrity of skin and pain. Ozkan et al.(2003) evaluated the nursing care plans (developed and applied by them) on 22 patients who had undergone abdominal surgery and the diagnoses most often made were acute pain, risk of infection and impairment in physical mobility. In Karadakovan and Yeşilbalkan's study (2004), where they examined the nursing process developed by 124 students practicing in the neurology clinic, the most frequently detected 5 diagnoses were in order: risk of infection, deficiency in self-care, impairment on the integrity of skin, impairment in physical mobility and insomnia. In a study performed by Salgado and Machado (2011) related to utilization of nursing diagnoses in an intensive care unit, three diagnoses were used for all patients: deficiency in self-care, risk of infection and risk of constipation. In Korhan et al.'s study (2015) lack of information, risk of infection and deficiency in self-care were the most often used diagnoses. The findings of the present study are similar to those of many studies for frequency of diagnoses used.

In the present study, the effects of using the NANDA during the nursing process on the students were investigated and it was found that it influenced students' knowledge, skills, critical thinking, autonomy, motivation and time management positively, but not job satisfaction, whereas, it affected workload negatively. Similarly, it was established in Avsar et al.'s study (2014) that use of the nursing process has affected nurses' knowledge, skills and critical thinking positively but the workload, time and energy negatively. However, the nursing process is an approach that enables organization of nursing care and provision of effective care. This process enables economical use of time and reduces workload.Besides, the communication among themselves and with other members of the health team and the community becomes easier and it facilitates application and evaluation of

nursing care (Ralph & Taylor, 2005).

In the present study more than half of the students felt dependent when using the NANDA. Nursing roles varied from the past to present-day and evolved in the form of modern nursing roles. Among the modern nursing roles, especially independent roles of nursing are important for proficiency and occupational autonomy. The authority to make decisions and take responsibility makes health professionals more at peace with the health profession, their own patients, administration and the occupation. Persons who take responsibility feel more powerful and influential. The sense of powerlessness is one of the fundamental gains of professionalization (Avery & James, 2007). It is thought that students are in need of a system other than the NANDA that is electronic, more comprehensive, prevents deficiencies and errors in care and increases communications among care providers in order for students to feel more professional and independent when using classification systems.

Status of Students Knowing Nursing Classification Systems other than the NANDA

In the present study almost half of the students stated that they were familiar with other nursing diagnostic systems. It was determined that students were aware of the Nursing Interventions Classification(NIC) system, the Nursing Outcomes Classification (NOC) system, the International Classification of Nursing Practices (ICNP) and the Omaha classification system. In Kaya et al.'s study (2010), it was observed that 28.3% of the nurses knew the NANDA, 10.1% the ICNP, 8.8% the NIC and 72% the NOC classification systems, whereas, 60.2% had no idea about classification systems.

In a study where Tastan et al. (2014) investigated 352 publications on the PubMed, CINAHL and EMBASE databases; among 312 publications, 72.4% were descriptive, 18.9% observational and 8.7% interventional studies according to level of evidence. It was observed that of the 312 publications examined, 72.1% were NANDA, NIC and NOC nursing classification systems and the combined classification systems embracing three of them and 9.6% were concentrated on the Omaha System. Findings have shown that the number of publications related to standard nursing terminology concentrated mainly on the NANDA, NIC and NOC has increased since 2000.

In the present study the rate of those who want to use systems other than the NANDA was 26.1%. This result is thought to be due to students' lack of information about other systems. When students who wish to use a system other than the NANDA were asked what type of system they wanted, they replied that they wanted to use a comprehensive and effective diagnostic system, a more professional system that is not dependent on paper and a digital system.

Conclusion

In the present study it was determined that a vast majority of students have experienced difficulties during the phases of the nursing process and needed help during preparation of the nursing process. Students are in need of help during the diagnostic, planning, application and data collection phases. Although almost all of the students use the paper method when recording the nursing process, more than half of them stated that a digital recording method must be available. Almost half of the students utilize the NANDA nursing diagnoses effectively and make the available diagnoses. More than half of the students stated that they felt dependent when using the NANDA and almost half of them knew other nursing diagnostic systems. When the type of system they wanted was asked, they stated that they wanted to use a more comprehensive and effective diagnostic system, a more professional system that is not dependent on paper and a digital system. Development of guidelines for the proper use of nursing diagnoses, performing studies to improve students' critical thinking and diagnostic capabilities, enhancing the quality of education related to the nursing process, repeating the training related to the phases of the process in real cases, utilization of a more professional and digital nursing diagnostic system not dependent on paper can be recommended.

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